TOUR COMPLETION REPORT

MTM Productivity Study Tour

Livestock Industry

from

Kharkiv, Ukraine

USAID Grant #121-G-00-99-00728-00

Center for Economic Initiatives
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Livestock Industry Study Tour

1. Executive Summary

From August 11, 2003 to August 31, 2003, CEI led a second MTM Livestock Tour to selected host farms/companies in the US. The purpose of the tour was to continue to expose key Kharkiv, Ukraine farms to the modern methods of livestock/poultry farming, and provide a basis for making strategic improvements in the Ukraine agricultural industries. Productivity of the Kharkiv farms is about one-fifth to one-third that of US farms. The focus of the tour was on cost effective means for Kharkiv to achieve short term results while developing a more robust long-term plan for modernization. The tours participant make up consisted of thirteen individuals from 12 agricultural farms, one individual from the local agricultural university, and one Oblast livestock official. Collectively the farms cover 32,134 hectares, and grow 10,423 cows, 2,910 swine, 1,365,000 chickens, 3,500 turkeys, and 900 sheep.

The tour visited 23 host organizations in six states and traveled than 5,000 miles. Based on the visits to the American hosts, participants projected improvements that will result in savings/revenue opportunities of 2.135 million UAH in new revenue (soy as a cash crop and increased revenue from better quality raw material), 11.294 million (adjusted for Cross-Zaria overstatement) UAH in cost savings (improved feed, storage bins with dryers, milk replacement for young livestock, waste reduction, and modernization), and 1.060 million UAH in capital expenditures (used since much of it was projected for US equipment). Areas where there are projected improvements but no costs saving projections include modernizing the waste removal system to include injection into the ground, reducing infant fatality in cows and sows, reducing the number of replacement cows needed to sustain the herd, improved equipment maintenance, and labor savings from improved/automated operations.

The biggest opportunity for increasing productivity and profitability lies in improving the feed to livestock and poultry. Depressed markets and low prices have caused many of the farms in Kharkiv to reduce the feed and supplements to livestock. This causes lower than average output, physical deterioration, and increased infant mortality. All of these problems can be reversed by improving the feed. The farms in the US rely almost entirely on the use of soy and corn. The benefits of that combination in improving output were not lost on the participants. Most participants saw the opportunity to grow soy for use as a cash crop as well as a feed base for improving animal health. Nearly all of them plan to add soy and corn as a staple for next spring's plantings.

The second area of peak interest by the entire group was the use of large storage bins (look like small metal silos) with dryers that allow US farmers to harvest, dry, and store all their own feed supply. For the average Ukraine farmer, mills typically charge about 30 UAH/ton to reduce the moister in grain used for feed supplies. The group felt that this could be reduced to no more than 10 UAH if they could process and dry their own. The projected savings from just three companies would amount to 6.4 million UAH per year and would greatly increase the quality of the grain. None of the participants had an estimate of how much it would cost to install and operate the grain bins but the three largest are contacting American manufacturers to get price estimates.

Finally, an area that will also generate savings and improve crop yields is animal waste management. Animal waste management using injection and/or composting affords a longer term option for reducing costs. However, this will require some additional investment in machinery to accommodate the procedure. Most of the agricultural farms plan to further explore how this can be achieved through use of the technical resource center.

As demonstrated by the projected results of this tour, and the actual results of the 2001 tour, MTM tours are an excellent educational program for developing economies. They provide the impetus and the direct knowledge for business executives to build a solid competitive operation. Participants employ more personnel, pay higher wages, and significantly improve the economic climate in their region.

2. Background

Under grant #121-G-00-99-00728-00 and in conjunction with the US Ambassador to Ukraine, the US Agency for International Development Kiev, and the Ukraine government, CEI identified the agricultural sector of the Ukraine economy as a specific target for implementing a Marshall Plan like study tour. The purpose of the tour was to provide first-hand experience in modern methods and procedures to key agricultural industry segments in an effort to make them more competitive, increase employment, and improve the standard of living for one of the largest industries in the Ukraine economy.

Early in 2001, CEI identified and selected sixteen agricultural farms in the Kharkiv oblast of Ukraine for participation in an MTM Study Tour. The group was selected using the assistance of the International Executive Service Corps (IESC) and the Center for Perspectives, the former a US government sponsored agency and the latter a non-governmental organization (NGO) in Kharkiv.

The participants visited US host companies and farms in August 2001. Upon return to Kharkiv, they collectively implemented changes that resulted in $5.8 million (USD) improvements to their farms through significant cost reductions (low-till/no-till farming techniques, shortened time to market, significantly reduced fatality rates, and improved feed). As a result of those improvements CEI decided to run a second study tour in an effort to further extend the benefits throughout the oblast.

In April 2003, a second round of selection for participation in a study tour was conducted, again with the assistance of IESC and the Center for Perspectives. At that time thirteen (13) agricultural farms and two (2) oblast/rayon officials were selected along with one junior livestock specialist from the local university. The selection process was the same as for the first group. Information was gathered by IESC including base line productivity and financial results, and a personal interview with applicants by two CEI volunteers. Numeric scores from both IESC and CEI were averaged to rank the participants. The top scoring businesses and personnel were then selected for inclusion in the program.

The second U.S. tour was conducted from August 11, 2003 through August 31, 2003. In total, the group visited nine (9) farms (one with two county agricultural extension agents as hosts), one (1) producers cooperative, two (2) industry associations, two (2) universities, one (1)

governmental regulatory agency, three (3) major US manufacturers, and the Chicago Mercantile Exchange (to see how futures are traded and prices set).

On August 31st the group departed the U.S. for return to Kharkiv, each with specific plans to improve their operation. Follow-up on this tour will be limited or cancelled based on the expiration of the USAID grant.

Note, of the thirteen farms originally selected for the second study tour, one cancelled due to a change of jobs. The rayon livestock official also cancelled without a reason given.

3. Ukrainian Participants

Name	Organization/Farm	Position
Yevgeniy Darmo	Zlagoda Private Agricultural Ent.	Director
Mykola Goroshko	Staroverovsky Poultry Farm	Director
Oleksiy Grygoryev	Krug Production Coop.	Chairman of the Board
Mykola Kosov	Ukraine Acad. of Agriculture	Jr. Scientific Officer
Olena Kulyk	Oblast Dept. of Agriculture	Chief Livestock
Valeriy Kulyk	Cross-Zaria LTD.	Vice Director Production
Sergiy Marakhovskyy	Verbovskoe Agrifirm OJSC	Vice Chairman
Oleksandr Pakhomov	Solonenske Joint Prod. Coop	Chief Veterinarian
Lyudmyla Pelykh	Rodyna Agricultural Complex	Chief Livestock Specialist
Vadym Plotnyk	Prometey Agricultural LTD	General Director
Olena Poberiy	Verbovskoe Agrifirm OJSC	Chief Accountant
Andriy Rovchak	Vostok Agricultural Coop	Chairman
Tetyana Rubizhanska	Rassvet Farm	Deputy Farmer
Yuriy Ryabokon	Agroimpex Private Ent.	Director
Valentyna Teliga	Chepil Agricultural LTD	Chief Livestock Tech.
Tetyana Vavriychuk	District Agricultural Dept.	Chief Marketing Specialist

Note: Tetyana Vavrichuk did not make the tour. DOSA LTD. was originally selected to participate but was replaced by Krug Production Cooperative due to a change in management.

4. Tour Itinerary

Date	Time	Destination	Contact	Purpose
8/11	3:10 PM	Arrival, (DL 49) transport to Vernon Manor, 400 Oak Street Cincinnati, OH 45219	Kathy Kathman 513.281.3300 FAX 513.281.8933	Welcome Dinner
8/11		Vernon Manor	513-281-3300	Residence
8/12	8:30 AM	Vernon Manor	Lee Cole Bruce Vaillancourt Jim Titus	Orientation
8/12	12:30 PM	Vernon Manor	Kathy Kathman	Lunch
8/12	2:00 PM	**Downtown Cincinnati**	Vaillancourt/Sasha Etlin	Cultural exchange
8/12		Vernon Manor	513-281-3300	Residence
8/13	8:00 AM	**Hesselbrock Farm** 6020 Cincinnati-Brookville Road (Tim) Okeana, OH (738-4013)	Steve Bartels (Butler Co.) 513-887-3722 Greg Meyer (Warren Co.) 513-932-1891	OSU Extension Services – Support and US Farm Programs
8/13	1:30 PM	**Tewes Poultry Farm** 2801 Crescent Springs Erlanger, KY 41018	Darlene Tewes 859-341-8844	Turkey Farming
8/13		Vernon Manor	513-281-3300	Residence
8/14	9:00 AM	**University of Kentucky** Agricultural Science Bldg. (corner Cooper Dr. and S. Limestone [Barnhart Bldg.]) Lexington, KY 40546	Will Snell wsnell@uky.edu	Farm Business Management
8/14	1:30 PM	**Kentucky State Fair** 937 Phillips Lane Louisville, KY 40209	James Titus 513-535-1899 Media & Public Relations 502-367-5180	Agricultural promotions & livestock breeding
8/14		Vernon Manor	513-281-3300	Residence
8/15	**6:00 AM**	**Depart for Chicago**		
8/15	11:00 AM	**Chicago Mercantile Exchange** 30 South Wacker Chicago, IL 60606	Diana Amacker 312-930-2390 800-331-3332 damacker@cme.com	Mercantile operations and commodity trading
8/15	**7:00 PM**	**Depart for Green Bay, WI**		
8/15	10:30 PM	Fairfield Inn 2850 S. Oneida St. Green Bay, WI	Roger Sharp Diane 920-497-1010 $77.00/room	Residence
Date	Time	Destination	Contact	Purpose
8/16	8:00 AM	**Knigge Farm** 4577 Poygan Ave.	Pete Knigge Owner	The future of dairy farming. Robot

		Omro, WI 54963	920-685-5895	milking and waste disposal
8/16	3:00 PM	**Mehagan Farm** 13864 Lloyd Rd. Genoa, IL 60135	Pat &b Gilby Mehagan 815-895-8588 oldcrows@tdc.net	Modern pork farming techniques
8/16	9:30 PM	Marriott Courtyard 1930 Lincolnway E. Goshen, IN	Danielle 219-534-3133 Dbl – 53589-53596 $69.00 Sng – 53597-53600 $69.00	Residence
8/17	1:30 PM	**Yellow Creek Farm** 25202 County Road 36 Goshen, IN 46526	Truman Weaver Owner 574-875-5664 etweaver@maplenet.net	Typical American farm but Guernsey's instead of Holsteins. Oldest Pure bred Guernsey herd in US
8/17	5:30 PM	Marriott Courtyard 1930 Lincolnway E. Goshen, IN	Danielle 219-534-3133	Residence
8/18	1:30 PM	**Michigan Milk Producers Association** 41310 Bridge Street Novi, MI 48376	John Dilland General Manager 248-474-6672 Fax 248-474-0924	Operation and benefit of a farm cooperative
8/18	10:00 PM	Marriott McKinley Grand 320 Market Ave. South Canton, OH 44702	Rosanna Neff All Rooms - $69.00 330-454-5000 Fax: 330-454-5090	Residence
8/19	8:00 AM	**Park Farms** 1925 30th Street NE Canton, OH 44705	Carol Capocci Public Relations Director 330-455-0241X3115 sales@parkfarms.com	Full poultry operations – Egg –to-Table
8/19	2:00 PM	**OARDC** 1680 Madison Ave. Wooster, OH 44691	Dr. Harold Keener Mary Wicks 330-202-3533 Fax 330-263-3670 Wicks.14@osu.edu	Manure and composting management
8/19	7:30 PM	Residence Inn 2084 S. Hamilton Rd. Columbus, OH 43232	Tony Ruffin William Marshall 8 Dbl - $75.60 – Sng = $71.10 614-864-8844	Residence
8/20	9:00 AM	**Ohio Dept. of Agriculture** 8995 E. Main St. Reynoldsburg, OH 43068	Bruce Benedict 614-466-2732	Support for agribusiness from State Lab operations
8/20	2:30 PM	**Ohio Pork Industry Center** 122 Animal Science 2029 Fyffe Rd. Columbus, OH 43210	Dr. Don Levis 800-398-7675 614-292-1351 levis.7@osu.edu	Solutions to excess supply and operational improvements required during low consumer demand
Date	Time	Destination	Contact	Purpose
8/20		Vernon Manor	513-281-3300	Residence
8/21	8:30 AM	**Mohrfield Farms** 10279 State Rt 132 Pleasant Plain, OH 45162	Larry Mohrfield - owner Dan Coopman- farm super. 513-877-2300	Top breed Holsteins and marketing

			Fax: 513-877-2304 mohrfieldholsteins@mohrfieldholsteins.com	
8/21	1:30 PM	**Cowan Lake State Park** 729 Beechwood Road Wilmington, OH 45177	 Park Ranger 937-289-2105	Mid-tour Review
8/21		Vernon Manor	513-281-3300	Residence
8/22	8:30 AM	**Mullins Farm** 7938 Hamilton Scipio Rd (State Rte. 129) Okeana, OH 45053	Tim & Amy Mullins 513-756-9305	"Typical" American dairy farm operations
8/22	2:00 PM	**Greenacres** 8255 Spooky Hollow Rd. Cincinnati, OH 45242	Carter Randolph Exec. Vice President 513-891-4227 (Patty)	Organic farming techniques to reduce cost & increase yield
8/22		Vernon Manor	513-281-3300	Residence
8/23	4:00 PM	**Vaillancourt's** 4561 English Creek Cincinnati, OH 45245	Bruce Vaillancourt 513-752-0069	An American home cooked dinner Cultural exchange
8/23		Vernon Manor	513-281-3300	Residence
8/24	4:00 PM	Depart for Decatur, IL		
8/24		Country Inn & Suites 5150 Hickory Point Rd. Decatur, IL 62526	Julie (no confirm needed) Dbl - $59.95 Sing - $63.95	Residence
8/25	9:00 AM	**Archer Daniels Midland** 4666 Fairies Parkway Decatur, IL 62526	Tony Delio Debi Conner 800-637-5843 debi_conner@admworld.com	Use of soy in feeds and maximizing yields/time to market
8/25	2:00 PM	**Purina Mills** 100 Danforth Dr. Gray Summit, MO 63039	Larry Woolweaver Sharon Wilson 800-227-8941 314-768-4100 (636)742.0103 X-6103 Fax 314-768-4894	Current research in improved feed and herd planning (Rosie)
8/25	11:59 PM	Vernon Manor	513-281-3300	Residence
8/26	9:00AM	**Mt. Healthy Hatchery** 9839 Winton Road Mt. Healthy, OH 45231	Rob O'Hara Owner 513-521-6900 Fax: 513-521-6902	Incubation, Distribution, and Marketing
8/26	2:00 PM	**Bayes Purebreds** Animal Science Bldg. 2129 Fyffe Rd. OSU	Michael Bayes 614-877-2202 bayes.7@osu.edu	Association functions and support (Nat'l Pork Board)
Date	Time	Destination	Contact	Purpose
8/26	8:30 PM	Holiday Inn Express 2826 US 41 North Henderson, KY 42470	 8 DBL – 60394085 –$69.99 4 Sng – 60394363 - $69.99	Residence
8/27	9:00 AM	**Tyson Foods** 14660 US Hwy 41 S. Roberds, KY 42452	Richard Dutton Plant Manager 270-521-3021	Poultry processing from US largest retailer

			Richard.Dutton@tyson.com	
8/27	7:30 PM	Vernon Manor	513-281-3300	Residence
8/28	9:00 AM	**Glencarin Farm** 2142 Hathaway Union, KY 41092	Bruce Furgeson Owner 859-384-3539	Beef cattle operations
8/28	1:00 PM	**Kentucky Horse Park** 4089 Iron Works Pkwy Lexington, KY 40511	James Titus 513-535-1899 Park (800-678-8813)	Equine care and handling
8/28		Vernon Manor	513-281-3300	Residence
8/29	11:30 AM	Vernon Manor	Bruce Vaillancourt Lee Cole Jim Titus	Exit Interviews Free day
8/29	4:00 PM	Queen City Club	Lee Cole	Farwell Dinner
8/29		Vernon Manor	513-281-3300	Residence
8/30	8:00 AM	Vernon Manor	Bruce Vaillancourt Lee Cole Jim Titus	Exit Interviews Free day
8/30		Vernon Manor	513-281-3300	Residence
8/31	7:15 PM	Transport to Airport, Depart for Ukraine Flight Delta 48	Kathy Kathman 513-281-3300	

5. Trip Report

The group arrived at the Cincinnati airport on August 11th and was transported to the Vernon Manor for check-in. Immediately following the check-in, a welcome dinner was provided by CEI. The participants retired for the evening after the reception.

Day 2, August 12. The group met in a conference room at the Vernon Manor Hotel for orientation. Leland Cole, CEI president, instructed the participants on the standard business practices they would experience in the United States, business etiquette, and conversion factors for most measures they would need to convert to metric. It was immediately followed the Tour Director, Bruce Vaillancourt providing an overview of the US tax system as it applies to agricultural enterprises, and then outlining the tour including the types of farms and the supporting organizations that would be visited.

Following lunch, the group boarded a bus for a tour of Cincinnati and local shopping locations for food and supplies then returned to the Vernon Manor for the evening.

Day 3, August 13. The first appointment was at the Hesselbrock Farm in Okeana, Ohio some forty-five minutes from Cincinnati. The current owner/operator is Tim Hesselbrock, a second generation farmer on the land. Hesselbrock's have one of the highest producing Holstein herds (milking 325 cows) in southwest Ohio and operate in a nearly self-sufficient manner growing its own corn (1,000 acres) and soy on more than 2,600 acres. Steve Bartels and Greg Meyer (Ohio agricultural extension agents) met the group at the farm to discuss the role of the extension agents helping farmers maximize production and manage their costs. Key elements of the visit included how to maintain a calf survival rate of approximately 98%, feed mixtures and quantities, and fully automated milking operations.

Ukraine benefits

- small improvements in feed mixtures produces significant improvements in milk yields
- Use of soy greatly enhances the quality of the feed and thus survivability of calves
- Calves can be weaned from mothers milk within days rather then weeks and placed on milk supplement (much cheaper)

After lunch the group visited Tewes Poultry Farm in Crescent Springs, Kentucky. The farm is owned and operated by the Tewes family. Turkeys are bred and grown on the farm for wholesale and retail customers in northern Kentucky and southern Ohio. The farm typically grows more than 3,000 turkeys each season with the majority being sold for the US Thanksgiving holiday. The tour covered three barns (1,000 birds in each barn). The average grow out time from egg to market is 10 weeks.

Ukrainian benefits

- First hand knowledge of turkey farming as an alternative to chicken farming
- New methods for segregating poultry (chicks above, hens below, toms in separate facility)
- Feed mixtures and cost for maximizing profits

Day 4, August 14. Early in the morning the tour met with Dr. William Snell at the University of Kentucky, College of Agricultural Science. The purpose of the visit was to provide the Ukraine farmers with an opportunity to discuss applications from UK agricultural research on improved methods and procedures and how those projects are disseminated to Kentucky farmers for improving operations. UK offers a unique farm business management curriculum to help better train future farmers in profitable operations. After a brief overview of the College of Agricultural Science department head, Dr. Lynn Robbins, Dr. Snell and his staff outlined the program and the field support offered through the university to help all Kentucky farmers better compete in global markets.

Ukraine benefits

- How to maximize profitability in farming
- How markets can be used to manage cycles in agriculture
- Development of markets and trade

The second half of the day was spent at the Kentucky State Fair in Louisville (compliments of Governor Paul Patton). The Kentucky State Fair afforded the group an opportunity to witness the impact of improved breeding and feeding for almost every line of farm animal. The group stopped at nearly every animal exhibit to talk to adults and children (through interpreters) about productivity, advantages of each breed, and care and feeding for the animals prior to the show. As a whole, they were most impressed with the responsibility the children were given to prepare their animals for competition – and the follow-through from each and every child no matter how young. Consensus opinion was that such activities should be done in Ukraine and in Kharkiv to stimulate an improved knowledge in the proper care for farm animals and to educate children in good farming techniques. All agreed there would be a short and long-term impact by providing such competition.

Ukraine benefits

- Improved dairy cattle breeds
- New Poultry breeds and potential for new market expansion
- Effects of competition on improved breeding and feeding

Day 5, August 15. After a very early departure from Cincinnati, the group visited the Chicago Mercantile Exchange ("CME"). Post September 11, 2001, CME has modified its operation and scaled back the trading floor considerably. In a private room away from the trading floor, the group was introduced to the operation of CME as it existed in the past and the modifications that have been made through the use of technology. The principle of a futures market was also explained in detail. Of particular interest to the group was the transaction for future purchase and the benefits it provides processors and sellers.

Ukraine benefits

- A better understanding of American free markets and pricing
- Contract buying in large quantities
- The role of a market intermediary in expediting the sale/purchase of goods and services

Following the visit to CME, the group departed for Green Bay, Wisconsin for evening quarters.

Day 6, August 16. The tour met Pete Knigge at his farm in Omro, Wisconsin at 8:00 am. The Knigge farm was the first in the US to install robot milking machines. The purpose of the visit was to educate the Ukrainian farmers in how their European competitors will be operating in the not too distant future. Though milk prices have been at 10 year lows in the US, the Knigge farm has maintained its productivity (approximately 72 pounds per cow per day). The tour included open access to the robot milkers baling equipment and bags for storing haylage on the ground (as opposed to standing silo's), and storage bins for grain. There was a special explanation of animal waste and how it is stored and ultimately used for fertilizing fields with an injection method directly into the soil.

Ukraine benefits

- First hand knowledge of the benefits of automation
- New waste removal techniques that meet US or Ukraine environmental standards
- How to dry soy to reduce dependence on outside mills
- Storage for soy, haylage, and silage
- Proper corn growing techniques

The tour made the long trek from Omro, Wisconsin to Genoa, Illinois to get its first glimpse of American pork farming at the Mehagan farm. Pat and Gilby Mehagan provide the capital and have a farm manager that cares for the farm and the animals. Profits are split equally. The farm grows the pigs from piglets to market in approximately five and one-half months (less than half the time-to-market experienced in Ukraine). Two separate barns house the pigs – both with automatic waste removal systems that feed into a central collection point where it is liquefied and eventually spread on fields for fertilizer. The barns are fairly new, built only three years ago. The piglets are separated by age and as they mature they are moved into the next segment of the barn until they finally reach market age. A genuine farm style dinner was prepared especially for the Ukrainian visitors and served during the question and answer segment of the tour.

Ukrainian benefits

- Feed mixtures and quantities to maximize growth
- Waste removal system producing low odor emissions
- Use of soy in feed to reduce infant mortality rates
- Selective breeding habits to produce prime sows

The group departed Genoa immediately following dinner and went to Goshen, Indiana for the evening.

Day 7, August 17. The morning was free time (Sunday) for the Ukrainians to attend to their needs and relax. In the early afternoon the tour went to Yellow Creek Farm owned and operated by Truman Weaver. Yellow Creek has the oldest pure bred Guernsey herd in the United States. Guernsey cattle are generally easier to handle and winter better than Holsteins. However, they also have a tendency to produce slightly less milk per cow, though the fat content of the milk makes it equally as valuable as Holstein (due to premiums paid for higher fat content). Again, the group was exposed to feed mixtures that relied heavily on soy as a nutrient in order to minimize the amount of vitamins and minerals required as a supplement.

Ukrainian benefits

- Value of diversification in dairy cattle for maximizing revenues rather than output
- Value of selective breeding on maintaining herd consistency
- How to isolate dry cows and when to reintroduce
- Effective use of calf pens to reduce infant mortality

Day 8, August 18. After departing Goshen, Indiana early in the morning, the tour proceeded to Novi, Michigan for a visit with the Michigan Milk Producers Association ("MMPA"). MMPA is a dairy cooperative of some 2,000 dairy farms in Michigan, Ohio, Indiana, and Wisconsin that owns and operates its own processing plants for cheese and dry and condensed milk. The operating plants are used by the cooperative to help manage the supply chain and to remove excess supply from the market. MMPA members have received significant benefit from membership averaging more than fifteen dollars per hundred weight (nearly a dollar more than non-member farms) for their raw milk even in the depressed 2002 market. The group met with John Dilland, General Manager of the co-op and enjoyed lengthy exchanges on the functions of the co-op, how members receive their money, membership selection, size of farms admitted, marketing efforts, and regulatory support provided by an American cooperative.

Ukrainian benefits

- Strength of cooperatives in offsetting buyer market power
- How to set up and operate an effective cooperative
- Legislative and regulatory strength of cooperatives by providing one voice for all

After the interview with MMPA, the group departed for Canton, Ohio for the evening.

Day 9, August 19. The group was up early for an 8:00 am meeting at Park Farms. Park Farms is a small independent poultry farm/processor in northeast Ohio. Carol Capocci led the tour that visited the hatchery, the grow-out farms, and eventually the processing operation at the company headquarters location. Park Farms is small by US standards (ranked number 52 our to 57 US poultry processing companies). The company processes 2.0 million chickens per month (a market giant by Ukraine standards). At the hatchery the group observed receipt of eggs, the incubation process including vaccination, the hatching process, and the packaging process for shipment to the company's grow out farms. Following the newborn chicks to the grow-out farms, the group was treated to a video of a new harvester that allows machines to harvest the chickens rather than human teams. Park Farms was instrumental in the design and development of the machines. Each grow out farm has approximately 100,000 chickens (20,000 per coop) and one farm manager to ensure the chicks are fed and the dead removed (losses are approximately 1%-2%). Once market ready, the chickens are transported to the processing plant for slaughter, cut up, packaged, and transported to retail outlets for sale.

Ukrainian benefits

- Mass production techniques
- Feed mixtures to ensure rapid growth
- Sanitation standards and how to achieve them
- Egg to table production
- Economies of scale in profitability calculations
- Employee job specifications

- Pay for performance (piece count base plus incentives)

In the afternoon the group visited the Ohio Agricultural Research and Development Center ("OARDC") in Wooster, Ohio. OARDC is owned and operated by The Ohio State University and is an essential element of the OSU College of Agriculture. The purpose of the visit was to learn modern waste removal/composting techniques to improve farm environmental concerns. OARDC has developed new methods in composting and waste removal substantially reducing ecological problems as well as the time required to use the material for fertilizer.

Ukraine benefits

- Collaboration between universities and agriculture for solving problems
- New waste removal techniques for large amounts of dairy cattle, hogs, and chickens

Though the previous livestock group found the work of OARDC to be extremely interesting and useful, this group of farmers had only a passing interest in the work and potential applications on their farms. Only one poultry farm was interested in composting. As a result, the tour was cut short and departed for Columbus, Ohio.

Day 10, August 20. The day started with a visit to the Ohio Department of Agriculture. Since the tour had a participant who served in the same capacity in Kharkiv, the functions of ODA were of special interest to the group. Bruce Benedict led the tour which included formal presentations by the Chief of Dairy Operations and the Chief of Meat Operations outlining the role of ODA in the advancement of Ohio agriculture, standards applications, disease control, inspections and enforcement. All the participants were shocked by the very low numbers of inspectors in the field. After the formal presentations the group was treated to a tour of the ODA testing labs – one of the finest in the Midwest.

Ukrainian benefit

- Learning how regulators can help agriculture by ensuring uniform compliance with safety and health standards
- The role of government in helping find export markets
- A friendly atmosphere of cooperation rather then contention

In the afternoon the group visited the Ohio Pork Industry Center located on the campus of The Ohio State University. The purpose of the Center is to promote pork consumption and develop ways to help producers retain more profits when pigs are marketed. Pork farmers have received less and less of the retail value of processed pork over the past five years. The Center, in conjunction with the Ohio Pork Producers Association the National Pork Board was formed in 2001 to study the causes for the decline and to devise programs to reverse the trend. Though there have been some widespread training programs developed for pork farmers in proper methods and procedures in raising pork for markets, unfortunately, little progress has been made to date in reversing the dominance of the meat processors and retail chains.

Ukrainian benefit

- Cooperation between universities and private industry in finding solutions to agricultural problems

- How to organize and operate a jointly (public and private) funded industry initiative to advance agriculture

Following the visit to OSU, the group returned to Cincinnati.

Day 11, August 21. Mohrfield Farms in Pleasant Plains, Ohio was the host for this early Thursday visit. Mohrfield Farms raises pure bred Holsteins – US national grand champions. Some of the calves sell for $12,000, and some of the cows are valued in excess of $20,000. Mohrfield farm provides sperm from its prized Holstein bulls and embryos from its award winning cows. Other than these being extremely pampered cows (cushion of sawdust freshened twice a day and waste removed almost immediately) the farm operation is similar to any other- milking starts at 6:00 am and 5:00 pm, feed is provided in the stalls on a continuous basis in the form of haylage, and regular feeding is a mixture of corn, soy, and vitamins. On average, the cows are fed one pound of feed for every one pound of milk they produce, all tracked by computers and imbedded tags on the cows. Due to the excess rain in Cincinnati over the summer, Mohrfield actually imported hay from Montana and other western states to feed the cows. It was a better grade of hay than any of the Ukrainian farmers had ever seen and they asked questions regarding obtaining seeds for their own planting.

Ukrainian benefit

- Selective breeding to ensure high quality herd
- Feed mixtures to ensure maximum output
- Use of haylage/silage in daily routine summer versus winter
- Alternative markets (sperm and embryos)

After the Mohrfield Farm visit the group traveled to Cowan Lake for a mid-tour review and open discussion on a free market economy, the role of an effective futures market, modern farming techniques including no-till farming and equipment, soy as a feed and cash crop, and general responses to each of the tour stops. The general consensus was that there was more to be absorbed from the visits than time allowed, that US farmers work too hard, that family ownership of farms promotes higher yields and more pride in a farm than the old collective and private farms of Ukraine, and that though productivity is high, profits are very low for US farmers – how can they afford new equipment.

Day 12, August 22. The day began with a visit to the Mullins Farm. The Mullins farm is an Ohio dairy farm much like those found in Ukraine with the exception that it is much smaller, only 150 acres. It is owned and operated by Tim and Amy Mullins. The output of the dairy cows averages 65 to 70 pounds per day and the cows are milked for two years then sold. It is the unique procedure of selling cows after only two years of milking that prompted the visit to the farm. Despite having a small herd and currently receiving only $13.50 per hundred weight for his milk, Tim Mullins is making a profit from the farm. He does it by establishing an excellent milk production history for a select number of cows then selling those cows at premium dollars to other dairy farms that are trying to raise the overall herd output. Through this process, Tim is able to make money for the farm – not enough for afford any luxuries or new equipment, but enough to survive in a very depressed market.

Ukrainian benefit

- Managing herd turnover rates can, under certain circumstances, provide a profit
- Statistical record keeping is imperative to maximizing a farms profitability
- Small niche marketing can be as effective as large scale production in the absence of any competitors

The second half of the day and well into the evening the group visited Greenacres Farm. Greenacres is an organic farm (black angus cows, special breeds of chicken, pheasants, and fruits and vegetables) located in the heart of Indian Hill, the millionaires district of greater Cincinnati. Greenacres demonstrated grazing techniques developed from the study of the American bison that provides a natural fertilization of the grazing lands. The process consists of rotating grazing fields from cattle to horses to chickens to sheep. The process provides all the animals/fowl with sufficient food supply, provides natural fertilization, and keeps weeds and insects at minimum levels. Through extensive use of the process the farm has been able to eliminate the use of insecticides, pesticides, and manmade fertilizers. The farm is able to sell its products at a significantly higher retail than other farms because of the specialization in organic farming.

Ukrainian benefits

- How to farm with minimal or no use of fertilizers and/or pesticides
- Marketing to niche market segments to increase profits
- Feed mixtures using byproducts from local distillers to reduce costs

It should be noted that due to the depressed pricing structures in Ukraine, the techniques learned at Greenacres could have a significant impact on increasing yield, shortening time to market, and improving the overall profitability of farms, especially the smaller ones without access to capital.

Day 13, August 23. This was a free day allowing the participant's time to do their laundry, shop, and see some of the sites of Cincinnati. It ended with a dinner at the Vaillancourt household featuring American cuisine. It provided the Ukrainians an opportunity to sample American home-style cooking and learn more about the American culture through open discussions with several American families.

Day 14, August 24. Free day. Departed for Decatur, Illinois in early afternoon to make early morning appointment on August 25th.

Day 15, August 25. The highlight of nearly every tour is a visit to Archer Daniels Midland (ADM). Dr. John Less – Director of BioProducts and Dr. Brad Dalke –Director of Beef Technology conducted the tour and presentations. ADM was scheduled as a host to help educate the participants in the significant value of soy. Soy is used in some feeding applications on Ukraine farms but not to the extent that it is in the US. ADM provided much wanted mix formulas for piglets, calves, and poultry. The daily weight gain for livestock using ADM recommended mixes yielded results about 60% higher than the best any the participants were able to achieve on their own farms. Daily weight gain is important because it determines the time to market for beef cattle and hogs or for milking of dairy cattle.

There were three parts to the ADM tour. The first segment dealt with an overview of ADM and all its capabilities followed closely with a presentation on soy in the US swine market. The most interesting part of the presentation for the farm participants was the comparison in the protein

and nutrients in soy versus other gains used for feed. Ukraine uses a lot of sunflower and rapeseed that generate only 75% of the energy of soybeans. The comparison prompted many of the farmers to consider soy as a staple in farm animal diets when they return home. To assist in formulations, ADM provided the participants with proper mixes based on the weight and age of the livestock.

The second portion of the presentation dealt with poultry and beef applications for soy feed. Most of the Ukraine farmers found the comparison useful in helping them to manage their own costs. The poultry statistics were equally impressive with time to market averaging only six weeks at an average of five pounds per chicken. The largest poultry farmer in Ukraine (a participant on the tour) could only shake his head in surprise at the statistics on American poultry production and time to market.

The final part of the ADM tour consisted of a tour of the hydroponic gardens and aquaculture area. ADM branched out into hydroponic gardening as part of a natural waste reduction program within the plant. ADM was the recipient of the nation's most environmentally friendly plants during the Reagan presidency. The tradition has continued to this day although the plant no longer applies for the award. In addition to the hydroponics gardening, the Ukrainians were shown the aquaculture fishery used for growing Tilapia. The aquaculture system was originally developed as part of the water recycling efforts of ADM in the 1990's but has expanded to an independent operation due to the worldwide demand for the products. A few Ukrainians were interested in starting a similar operation upon their return, but access to capital will probably prevent any real activity in this area.

Ukrainian benefits

- Soy feed mixtures that can produce immediate results in increasing yields
- 10%-15% reduced costs for feed (using ADM formulas)
- Cooperation between big business and small farmers is essential for agricultural improvements
- External sources of feed input can improve productivity even though it has a cost – the increase in yields more than offsets the cost of product

Immediately following the presentations the group boarded the bus and headed for Gray Summit, Missouri – some three and a half hours away. Because the ADM lasted longer than scheduled, the arrival at Purina Mills was approximately one hour late. Despite the lateness, Larry Woolweaver, the Facility Manager for the entire research complex provided a tour of the equine, pork, beef cattle, and dairy facilities. He provided results from current research and development in the area of improved feeds. Samples of the feed were taken from nearly every section for analysis upon return to Ukraine. Of special interest to all the participants was a current feed mixture being tested that reduced the waste of beef cattle by 20% while maintaining the health and growth of the animal.

Ukraine benefits

- The benefits of improved feed in maximizing yields and reducing costs
- Collaboration between feed suppliers and agricultural entities
- Metrics for measuring key elements in growth and time to market for swine and beef cattle

The group departed Purina Mills long after the research facility had officially closed (Mr. Woolweaver stayed with the group to make sure all their questions were answered) and made the long trek back to Cincinnati, Ohio.

Day 16, August 26. The day began with a visit to Mount Healthy Hatchery in Cincinnati, Ohio. Rob O'Hara, owner met the group and conducted the tour. Mt. Healthy Hatchery is a unique operation that provides newborn chicks to American farms and uses the US Post Office as a distribution channel. The tour included the receiving area where new eggs are received and packaged for input into the incubators, the incubators, the immunization process, and finally packaging and shipping the newborn chicks. Of particular interest to the entire group was the egg packaging equipment (suction cups to lift two dozen eggs at a time) and the immunization process (injecting eggs with serum).

Ukrainian benefits

- Simple way to sex new chicks using wing feathers (don't have to pay to have it done)
- Importance of sanitation in maximizing live birth (reducing mortality)
- Inexpensive means of transportation
- More productive equipment (suction cup egg handlers and automatic immunization)
- Packaging for ease of transport
- Marketing and sales methods

In the afternoon, the tour visited Bayes Purebreds in Orient, Ohio. Bayes is a pork farm utilizing all modern methods of pork production and feed mixtures. Michael Bayes, owner, is a member of the National Pork Board and a professor at The Ohio State University. He has been able to apply the work done by OSU and the National Pork Board in improving profitable farm operations. Of significant benefit to the tour were the discussions on how to implement new methods to achieve maximum results. The farm is environmentally compliant and has one of the State of Ohio's shortest time-to-market. Mr. Bayes shared what he believed were the reasons for the success of Bayes Purebreds and in the benefits of maintaining the pure breed concept of pork farming.

Ukrainian benefits

- Product mix formulas for feed at various stages of growth
- Environmental procedures to reduce odor and aquifer contamination
- Marketing and support from national associations
- Developing local market dominance by providing superior products

Day 17, August 27. Tyson Foods was the only stop for this day due to travel time. Richard Dutton, Plant Manager, conducted the tour. The Roberds, Kentucky Tyson plant processes 1.5 million chickens per week, nearly all of which are sold to Wal-Mart. The dark meat processed is not for US consumption. It is frozen and sold primarily to Russia and other former Soviet countries including Ukraine. The tour covered all parts of the plant from receiving to slaughter to final processing and shipping.

Ukrainian benefits

- Use of USDA inspectors at plant (also required internationally for products that will be sold outside the processors country)
- Economies of scale in reducing production costs
- Full elimination of waste through recycling
- Piece part compensation and impact on productivity

Day 18, August 28. The morning started out with a visit to Glencarin Farm. Glencarin is a beef cattle farm just south of Cincinnati, Ohio. It is owned and operated by Bruce Furgeson, a retired judge and politician. The herd is primarily Black Angus and provides calves to cattle ranches in Texas and California. Because of his heritage, Mr. Furgeson also keeps a Scottish breed of beef cattle on the farm but does not use this breed as a cash generator. The cattle are allowed to graze in the pasture year round and are fed supplemental feed to ensure proper growth (a combination of grass, sorghum, and minerals). The process is quite similar to that employed by Ukrainian farmers for their dairy cattle. Note, Ukraine uses a breed of cattle (Semintal) they believe to be a dual purpose animal – milk producer and beef cow all in one. The purpose of scheduling Glencarin Farm was to educate Ukrainian farmers on specialization in the growth of beef cattle. It provided an opportunity to observe market segmentation (Black Angus cattle to meet beef demand), the care and feeding of beef cattle, and marketing.

Ukrainian benefits

- Herd maintenance procedures to minimize time to market
- Marketing and sales through wholesale organizations and auctions
- Creating alternative sources of income through tree farming

The afternoon was spent at the Kentucky Horse Park in Lexington, Kentucky. The purpose of the visit was to provide knowledge on the care and feeding of horses since several of the farmers on the tour also maintained a small herd of horses, some for racing. They were treated to films on different breeds, spent time in the paddock area observing care, and even had an opportunity to see a demonstration/competition of mounted police from across the United States.

Ukraine benefits

- Importance of feed in preventing injury and sustaining health
- Proper grooming practices
- Exercise procedures to enhance performance
- Selective breeding to enhance performance characteristics

Day 19, August 29. Exit interviews conducted all day. A farewell dinner was held at the Queen City Club.

Day 20, August 30. Exit interviews conducted all day. Those participants not involved in the actual interviews had a free day.

Day 21, August 31. The group enjoyed a free day until they were transported to the airport for their return to Kharkiv, Ukraine.

6. Exit Interviews

Yuriy Ryabokon – General Director, Agroimpex Private Enterprise (Poultry Industry – largest turkey farm in Ukraine)

- It was amazing to see only one person servicing 10 broiler houses (Park Farms). I see that I have to reduce costs substantially and not rely on subsidies. The subsidies will eventually go away and we need to learn to survive without them. That way we can become self sufficient and better compete outside Kharkiv.
- My number one priority will be to try to organize a trade association. We need an association of poultry breeders. Mt. Healthy Hatchery, Park Farms, and even Tyson are members of associations that help them progress and represent them in government. In the US associations are set up to engage in business (MMPA) as well as lobby for laws and this could benefit our industry.
    a. Cross-Zaria will start production facilities as part of the association in order to help control supply and maintain a profitable price structure. There will be three sectors covered with lots of automation (like Tyson).
- When I return I will serve as Director of Poultry Institute. One of my first objectives will be to try to get the type of lab equipment we saw at ODA and the universities. I estimate it will take six months to achieve this.
- I plan to build two more poultry houses. This will further expand our turkey production. They will be patterned after the ones I saw in the US – much more productive than existing poultry houses.
- Increase capital expenditures next year in order to automate and reduce headcount.
- I plan to disseminate a lot of the information I've gathered from the tour:
    a. I've already written two articles and now that I've been part of the MTM Tour I plan to write another. The new one will be on the importance of quality control. Everywhere we went the quality controls were excellent and employees followed the procedures without question. I believe the random testing in the US helps enforce the follow-up.
    b. I will publish a book on poultry farming based on my visit. It'll change a lot of ideas about mass producing poultry – as you say "economies of scale" are needed to be profitable.

Oleksandr Pakhomov – Solonenske Joint Production Cooperative Agrifirm, Chief Veterinarian

- We have to improve the living conditions for our cattle and hogs, increase the quality of the feed, and increase the acreage for corn.
- I really loved the interface between science and farmers – Purina Mills, OSU, ODA, UK, and especially ADM. We need similar cooperation in Ukraine.
- Ukraine needs associations like those in the US. They protect farmers and increase the stability of pricing (MMPA). I will share the concept when I get home with my general director and other rayon officials.
- In the US farmers own their own land and it results in higher productivity. We have 1,500 cows and I will suggest breaking the farm into smaller units. Each farmer will be responsible for results and profits. They will share 50/50 in the profitability of the farm – just like a cooperative (MMPA).
- We will focus on breeding and care of cows (Mohrfield). We will select the top 100 cows for breeding to improve the herd.

- In the US, electricity runs about $350/month, in Ukraine about $3,500/mo. We will implement programs to reduce expense by 30% in year one and 50% in year two.
- We will improve the feed to 300 cows to increase milk output (from 700 current milkers). Our new mixture for feed will be 30 kg. silage, 12 kg. haylage (up from 8 kg. now), 2 kg.-3 kg. special mixture (60% corn and soy) per cow per day. We expect output to increase to exceed the output from the 700 cows milked today.

Yevgeniy Darmo – Director, Zlagoda Private Agricultural Enterprise (dairy farm)

- Have 300 cows. We will use embryo transfer (Mohrfield) to replace herd quicker than artificial insemination (AI has questionable quality in Kharkiv today). Based on Mohrfield experience they get 50% (actually 80%) success versus Zlagoda's 20%-30% using AI. We can replace the herd in half the time if we use embryo transfer (need to acquire the skill).
- The plastic bag storage method for silage would be a huge benefit to our farm by reducing losses by more than 25%. As soon as we have capital for investment we will buy the machines and bags to do this. Our present process consists of digging pits 20 meters wide with a 3,000 ton capacity. The top 15-30 centimeters and the bottom 15-30 centimeters rot before use. We can avoid having to purchase additional needs (**25,000 – 30,000 UAH/yr.**).
- I will convince Zlagoda to reconsider corn and soy. We grow neither at this time. Based on what I saw in the US and the productivity increases we can get from our cows we could greatly benefit from increasing corn and soy in our feed supplies. We will try 50 hectares next year as an experiment to see if we can grow soy. Soy prices are stable and profits are high. Our only problem is we don't have regionalized seeds like you do in the US.
- We will purchase the metal storage/drying bins we saw on several farms in the US (Knigge). At present we pay 50 kopeks for each 1% of moisture reduction/ton, 13 UAH/ton delivery, and 20 UAH/ton shipping. Plus, we have to fund our own hauling. If we owned our own drying/storage facilities like those in the US we could really save lots of money and improve profitability. We can save 15% (**47,250 UAH**) by drying our own and if we can lease the equipment it would be a 2-3 year payback.
- I want to purchase a machine to inject manure into the fields (Knigge). I will ask the Precise Machinery (Donetsk) to build one for us (sales rep from Precise coming on equipment MTM tour).
- I learned to harvest alfalfa at its budding stage (Knigge). It is an extremely valuable feed and at the budding stage we usually let it rot so this would be a 100% return.

Vadym Plotnyk – General Director, Prometey Agricultural LTD. (dairy farm)

- This trip was a real eye opener. I have numerous plans for implementing so many things – I wish we could afford to do it all at the same time.
- I will purchase the baggers and plastic bags for storing haylage and silage. I was skeptical when I saw this in Ukraine but seeing and talking to farmers that use them has been really valuable. We lose $20,000 US every year in livestock due to feed. We can eliminate nearly all of this.

- I will partner with Rovchak to grow pedigree cattle. I have 10 cow barns that are empty and we can start a whole new herd. We saw the results that can be achieved on every farm we went to in the US. Even the small farms (Mullins) kept top quality producers and didn't mix breeds. Because the livestock operation loses money we sold our cows prior to coming on tour (averaged only 4 liters per day per cow). We can break even at 12 liters per day and can make money at 15 liters per day (US gets at lease 30 liters per day). We don't have to be as productive as Americans to make money and become more competitive – but we do need good prices from the processors. With the planned growth of a pedigree breed, we can use the cash flow from the livestock to pay expenses until the crops come in.
- I will plant soy next year. It is such a valuable crop for feed and it brings in 300% profit. I don't know why we've avoided it for so long. We can use it for a cash crop to off-set the cost of what we feed to our cows to increase their production. At present, our livestock operation loses money and our crop operation produces a profit. The added soy will generate 150% profit after we pay the taxes.
- We have 1,600 hectares of arable land. We currently spread manure on 200 hectares and use synthetic fertilizers on the rest. Wealthy farms put manure on fields once every other year and the poorer farms once in seven years (diesel fuel too expensive to haul it to the fields.) So, it all sits in piles until who knows when. A system like Knigge's would allow us to use the manure more efficiently and reduce the environmental issues we are now facing.
- We WILL start an association when I return to Kharkiv. At present Kupiansk Milk Plant acts like a monopoly controlling the price of raw milk in the rayon. Its head is also the chairman of the national association so little gets done for the small dairy farmers. If we can create an effective association we can significantly improve the rate farmers get for their milk (1.1 UAH versus 0.55 UAH in Kupiansk rayon). We'll need to provide legal protection for whole membership or it will fail before it can gain any strength.

Oleksiy Gregoryev – Chairman of the Board, Krug Production Cooperative (hog farming)

- Ukrainian agriculture is different than US. It is not feasible to use US methods and procedures. The only new thing I saw was the robot milking process – I knew everything else.
- CEI can change public opinion on agriculture. The government and general population can make positive changes in technology and processes.
- Ukraine can use an association/cooperative like MMPA in the future. I will develop something similar when I return to Ukraine with different producers.
- In Ukraine universities provide assistance to farmers through campus work. In the US that work flows to the farmers through extension programs. This process could work in Ukraine and needs to be investigated.
- My company is the largest feed producer and we will implement a strategy like ADM. That is, support of farmers within 150 miles of processing plants. We will add some of the ADM approach to market expansion like using excess heat to grow hydroponics and aquaculture. I expect to partner with Pokohov bakery to use their heat to grow tilapia like ADM.
- I was impressed with the delegation of authority on hog farms. I believe the need to change the mentality and psychology in rural areas is more important than

introducing new technology. I mean that you must behave in a predictable way and that one person can run a 2,500 hog farm.

- I want to sell feed additives all over Ukraine. I'll do this by selling the additives in the capital cities in every oblast. We don't use soy or corn – prefer wheat, barley, and oats. Now that I've seen the results, I will encourage providing full rations to hogs and poultry.

Sergiy Marakhovskyy – Vice Chairman, Verbovskoe Agrifirm Open OJSC (horse, dairy, and hog farming)

- I will immediately implement an experiment to change the feeding ration for calves. We provide 300 tons of whole milk to calves for feed. If we reduce it by 50% we would spend 120,000 UAH for 150 tons of feed for calves. Obviously, we would need to provide some mineral supplements which will cost about 75,000 UAH. Our net savings would be **45,000 to 50,000 UAH** in the first year.
- We will increase our soy planting by 100%. We sell almost all of our soy at this time but I now see that it is one of the best food supplies for our livestock. We will increase our soy harvest to 1,000 tons and use the extra soy to feed our own cattle. By increasing the amount of hectares for soy we will increase our revenues by **$200,000** US per year. The extra revenue will entirely pay for the use of soy in our own feed supply.
- I am now convinced we need to renovate our milk parlor (more like Knigge). We can then reduce our employees in this area from 15 down to 5 (**36,000 UAH savings**) not counting the reduction in taxes. I believe we can increase the quality of milk (less handling) and thus get an extra 5 kopek's per liter (5,000 tons at 5 kopek's liter).
- We currently put the cows out to pasture in the summer to reduce costs. Milk prices decline approximately 15 kopek's liter during the 45 days they are in pasture. We will try to implement a program similar to Knigge that provides extra feed and minerals to increase the fat and protein content in order to raise the price we receive. We expect increased revenues of 5 kopek's per liter or **492,000 UAH** per year.
- We must invest in new equipment. We need a Jaguar combine and corn cracker along with two balers and planters. I observed that all US farms have the equipment they need.
- We will use a soil injection system (Knigge) for liquid manure. We currently use a 12 cubic meter tanker and apply the manure on top of the soil then plow it under. The injection system will allow us to save fuel costs and still use the manure for fertilizer.
- No till farming will take 4-5 years before it takes root in Ukraine. Too many old farmers in charge for a more rapid adoption.

Valeriy Kulyk – Vice Director of Production, Cross-Zaria LTD (poultry farm)

- I learned to adapt. Americans are quick to adapt to changes in the market, we are not.
- Within one year we will produce feed for our own farms. We need to build storage for 26,000 – 28,000 tons of grain. I figure it will cost us $10.00 USD per ton to store it versus the 900 UAH/ton we are paying to purchase it now. I expect the facilities to cost several million UAH and at 17%-18% interest rate we need to

show a very good return to our members. We currently have one feed mill and one elevator that we will renovate (capacity up to 25,000 tons).

- Our complex is a giant and the biggest problem we face is the disposal of manure. We are very interested in composting (OSU) and if we can build something similar to what we saw we can save lots of money. Also, if there is a chance to use the injection method (Knigge) of application we can convince more of our neighbors to help us dispose of the waste.
- The idea of futures contracts (CME) is very appealing and we will try to develop futures contracts when we get back. We've heard a little about it going on in the southern oblasts but didn't really understand it until now.
- We don't have a good kill floor. It is inefficient. We will invest in modernizing it (Park Farms and Tyson).
- The extension service to farmers provided by universities (OSU and UK) was outstanding. I believe we can do the same for small grow out farms. Provide one day old chicks to grow out farms than send our specialists out to visit and make recommendations on improvements one month later.
- Ukraine needs to increase the culture of farming (Kentucky State Fair). Seeing children compete with such fine livestock is wonderful.

Andriy Rovchak – Chairman, Vostok Agricultural Cooperative (dairy farming)

- Vostok has already developed an improved feed mixture (Vitaly Rovchak participated on 1st livestock tour). We've increased pasturing to 1,800 hectares – young stock graze all summer. Right now we are growing hay on that area. Our savings from this is roughly 2.45 UAH/kg in costs from May to October.
- I've seen that rolling the grain can increase digestibility by 15%. We can then use the grain on a much larger scale and save 10% of feed per one ton of milk. We'll have to find a mill that is more productive than the one we currently use.
- I want a John Deere tractor with front loader and telescoping boom (Hesselbrock, Knigge, and Mohrfield). It will provide multipurpose use for baling hay and creating wind rows.
- I observed the need to create ventilation in barns. Cows need more ventilation than natural. We will add fans to our barns to help ventilation. I expect to get a 10%-15% increase in meat and milk as a result of better health.
- My goal upon returning to Kharkiv and implementing the new things to make us more productive will generate an additional 7,000 to 10,000 tons of milk per day. That will convert into **5,000 to 7,000 UAH** in revenues per day and 2,000 to 3,000 UAH per day in profits. That's a very good return on the time I invested to participate in the tour.

Nikolay Goroshko – Director, Staroverovsky Poultry Farm Agricultural LTD

- We need to increase the number of chickens (Park Farms and Tyson) to achieve economies of scale. That will necessitate building changes for broilers and layers, changes in the kill floor, mechanical processing, better manure management (OARDC) and the use of excess heat (ADM).
- Our new facility will have clay floors (Park Farms) in chicken houses – they are less expensive and absorb more moisture (dryer waste material facilitates use for composting).

- Our kill floor is all manual. We need to change to something like Park Farms or Tyson to become much more productive. I filmed everything I could so we can duplicate much of the process. I figure we can buy three machines at 70,000-80,000 UAH and get a payback in 2-3 years. We cannot afford not to take advantage of the opportunity.
- We use giblets and liver to make pate. Tyson processes them into meal for resale to others. We will attempt to buy the livers from Tyson.
- Our real scourge is manure management. What I saw at Park Farms will help us get our arms around the problem. OARDC helped with composting suggestions that will save us **200,000 – 250,000 UAH** per year. We can dry the manure and add urea to it to increase nitrogen. We could than fertilize fallow fields at a cost of 40,000 – 50,000 UAH per year. In addition, we could palletize and sell it. But, we currently get 14 wet tons that would convert to 5 tons dry – we could use all that ourselves.
- Grain drying is a problem. US facilities are impressive (Knigge, Hesselbrock). Right now we have to haul it to a processor who charges us 4 UAH per % moisture removed per ton. We typically have to reduce moisture by 6% - 7%. I want to install a natural gas drying system like the ones we saw in the US.

Tetyana Rubizhanska – Deputy Farmer, Rassvet Farm (dairy and hog production)

- I learned a lot on the tour. I was most impressed with the Kentucky State Fair, OSU and UK extension programs to improve marketing and operations (I believe this is a huge factor in US success and will try to implement something like it when I return home); the manure disposal system at Knigge farm, the electric prompt to make the cows back up to drop manure (Knigge and Mohrfield); selling embryos (Mohrfield) is a novel idea and the pregnancy rate is very high; Glencarin natural growth for beef cattle surprised all of us; organic farming at Greenacres is something we all took something home from; OARDC and composting can solve a lot of Kharkiv problems; and ADM cooperation is a dream – wish we had a company to compare to it.
- Here's what I plan to use when I get back to Kharkiv:
    a. Rotation approach to grazing (Greenacres). This will save s **5,000 – 10,000 UAH** per year.
    b. Composting approach for disposal of dead animals (OSU).
    c. Use of dry feed for pigs (Mehagan's, ADM, Bayes)
    d. We will plant soy and use for cash crop plus ½ for feed supplement **53,000 UAH** in new revenue
    e. Use of plastic for storing haylage and silage (Knigge, Hesselbrock)
    f. Use of bedding for cows (Mohrfield)
    g. Injection method of spreading manure over fields (Knigge)
    h. Starting a 4-H like program to raise the level and knowledge of good farm techniques in Ukraine youth.

Lyudmyla Pelykh – Chief Livestock Specialist, Rodyna Agricultural Production Complex (dairy, hogs, and sheep)

- I thought the Mehagan farm was outstanding. It focused us on housing and feeding. In the summer time it is the same as Ukraine but in the winter it provides roofed facilities with double floors (waste removal function). We learned that we

can wean piglets at 3 weeks versus the two months in Ukraine. As a result of feeding, sows lose weight and cannot breed as much (limit of 1 ½ litters per year). With the weight loss over time the mortality rate is high – we get 10-13 piglets per litter but only 7-8 survive. US numbers are much more productive and we need to change to keep up.

- We will change from wheat and barley for dry feed to corn and soy. As we observed in the US, the animals are healthier and gain much more weight in a short period of time.
- I observed at the Knigge farm and at Mohrfield that the cows were hornless. It decreases trauma so we will try this.
- We will wean calves earlier (2 months). We currently wean calves at 6 months and the cost of whole milk is more expensive than milk replacement.
- We are going to try calf isolation to reduce infant mortality. It seemed to work in the US at every farm we went to. There has to be a reason for such universal adoption so we'll try it to see if we can achieve similar results.

Valentyna Teliga – Chief Livestock Technician, Chepil Agricultural Farm (dairy and hog farm)

- We will change the practice of giving whole milk to calves and go to milk replacement. 25 kg. of milk replacement costs 28 UAH and makes 160 liters. Milk is selling now for 57 kopek's per liter so our savings is 63 UAH per day. Since we have calves on whole milk year round we could assume the savings would be **51,600 UAH** per year. The added cost of vitamins and minerals would be 5 UAH/kg., and would come out of those savings, but the investment is well worth while. I don't know why we have not done this earlier but the results we saw in the US convinces me that the savings can be achieved.
- We will replace the deep trench feeders with more shallow feeders. These will be easier for the milk maids to clean and eliminate spoilage. I estimate the savings to be **25,550 UAH** per year as a result of less spoilage, lower labor requirements, and better quality of feed (and fewer animal health problems).
- Artificial insemination for hogs can save us 16,000 UAH by reducing the number of boars needed to maintain the herd. It currently cost Chepil 2,000 UAH per year to keep one boar. Based on the rate of success of artificial insemination (Mehagan) we can reduce our number to two boars. The off-set for AI costs would be roughly 3,000 UAH so our net would be **13,000 UAH**
- Even after our visit to Glencarin Farm, I still do not understand enough about beef cattle. I do understand that the pasture method of growing beef cattle is a low cost method of growing.
- I plan to disseminate the information freely to everyone I see. The chair of our labor union will be provided the information to share at the rayon meetings and at the oblast level.

Olena Poberiy – Chief Accountant, Verbovskoe Agricultural Farm (dairy and hog farm)

- I think the spirit of the farmers is outstanding. We don't have that in Ukraine because reforms have only just begun. Owning the farm makes a big big difference.
- Associations in Ukraine are more supervisory than participatory. In the US they are more joint production and price balancing. They look for their own market. It is a joint effort to counterbalance the processors.

- We need to update our equipment. At present we have 60% outdated equipment and only 40% operable.
- We will increase soy crop from 200 hectares to 400 hectares next year. We gained 150% return on soy this year and we can use the extra revenues to off-set the amount we can then feed our own livestock.

Olena Kulyk – Chief Livestock Specialist, Kharkiv Oblast Department of Agriculture

- The extension service of OSU and UK was the greatest. We don't apply our resources in an efficient way in Ukraine. In the consulting area it is important to have assigned responsibility – it increases performance.
- There is a great deal of interaction between the universities and the State government that we do not have in Ukraine. Distance learning for programs for farm managers (great for building a business education background which is badly needed in Ukraine) is a program we should implement now – I'll propose when I get back. Improved forecasting and predictability models like those in the US – we can do this with the assistance of statisticians.
- There is little soy and no till farming in Kharkiv. We have such few farms willing to try and no regional seed mix nor equipment to promote it. Oblast assistance will drive more farmers in this direction.
- Our department program for 2003 and 2004 includes soy cultivation. Our plan for 2005 includes financial assistance for seeds and equipment.
- I especially like the Ohio Department of Agriculture. Their labs were part of their department. I'd like to put the stand-alone labs under our roof to improve reporting.
- ODA Livestock division was sub-divided. Five separate divisions with several inspectors to cover territory. This is much more efficient than what we have and I am taking back the organization chart to show the oblast how our American counterparts are organized.
- We have associations in Ukraine that were built from the top to the bottom. It should be the other way around. I plan to speak at a September 5 event on how to set them up and get them functioning correctly.
- 67% of all farms are now in the hands of small farmers. We can use the US model for providing assistance and helping make them successful.
- Park Farms was especially helpful. We can educate farms on table ready poultry production, clay floors for grow-out farms. We can help the grow-out farms remodel existing barns and install clay floors.
- My perception of Americans changed significantly. I now know Americans are open, kind, and helpful. That is not what we were taught and not what many of us believed before the trip. TV and movies were our only source of the cultural side of the US. Now I have first hand knowledge of how wonderful the people really are.

Mykola Kosov – Junior Scientific Officer, Kharkiv Agricultural University

- Process of manufacturing feed is very different in the US. Basic feature in US is that farmer grows his own feed and mixes the feed with balancing supplements. Based on what I saw, 65% is mixed on site. In Ukraine there is too much overuse of feed reflected in the high cost of production (small weight gain, low efficiency). There are 90 very large feed plants in Ukraine but only 5% are

actively manufacturing feed. They collectively manufactured 0.7 million tons in 2001 mostly consumed by the poultry industry.

- I plan to teach that it is more efficient to create small shops in each rayon to develop additives and the farms to grow (and dry) their own feed.
- I plan to push for the addition of computer dispensers that dole out the right amount of feed (Purina Mills, Knigge, Hesselbrock, Mohrfield, and Mehagan).
- I plan to promote milled corn as opposed to ground corn for calves (Yellow Creek) since it increases nutrition and at a cheaper cost.
- I plan to promote a mixture of forage and concentrate for livestock. This will increase production and shorten the time to market for most Ukraine farms.
- I want to learn more about embryo transplants so we can help farmers improve herds by transplants (Mohrfield)
- I plan to push for beef cattle farming. It's easy and inexpensive. I propose 95% dairy and 5% beef farming. Based on what we say I know Kharkiv can grow beef cattle.
- I plan to work with local farmers in the establishment of cooperatives. They do marketing and other balancing functions that promote the needs of the farmer when no one else is speaking for them.
- I plan to promote the use of extension programs to my university like those of UK and OSU. We need to get closer to the farmers we are supposed to help.
- I want our farmers to grow more soy – high protein and amino acids. They need to use it to improve the feed mix and they can diversify their cash crops by adding soy.
- I want to learn how to use excess heat the way ADM does, as a means of using what was once waste and creating a use for it.

7. Projected Preliminary Economic Impact

Based on the exit interviews, this was a very productive tour for all but one of the participants. The savings/increased revenue opportunities are different than those identified by the first livestock tour. The addative value of the continued MTM Tours for the Kharkiv Oblast should continue to support Kharkiv in its efforts to maintain its number one ranking in agricultural output in all of Ukraine.

The following table is a recap of the projected savings/revenue projections provided by the participants. CEI has made no attempt to verify the accuracy of the projections since they are based on participant calculations using their knowledge of market pricing and costs. A follow-up visit in 2004 could verify the projections and the improvements to the livestock/poultry industry.

	Planned Improvement value from Tour (UAH)							
	New Revenue	Revenue from Growing soy	Capital Expenditure Increases	Improved Feed	Dryer with storage bins	Milk replacement	Modernization improvements	Waste reduction
Organization								
Agroimpex			500,000	1,260,000				**X**
Chepil				25,550		51,600	13,000	**X**
Cross-Zaria				**X**	24,000,000			**X**
Krug	0	0	0	0	0	0	0	0
Prometey		265,000		132,500				**X**
Rassvet		53,000		10,000		6,300		**X**
Rodyna				25,550		63,000	13,000	**X**
Solonenske				369,380		**X**	1,750	**X**
Staroverovsky				**X**	2,344,000		30,000	250,000
Verbovskoe	492,000	1,060,000	580,000	50,000		**X**	36,000	**X**
Vostok						**X**	2,555,000	**X**
Zlagoda		265,000		30,000	27,250	**X**		**X**
Total UAH	**492,000**	**1,643,000**	**1,080,000**	**1,902,980**	**26,371,250**	**120,900**	**2,648,750**	**250,000**

NOTE: "X" denotes company will improve but could not estimate savings

Cross-Zaria estimates it will cost them 10 UAH per ton to store and dry their own feed versus purchasing at 900 UAH/ton. CEI does not believe they have incorporated the raw cost of the feed (soy, corn, etc.) in their projected savings.

8. Conclusions and Recommendations

By any measure, this MTM Tour was a success. The participants have identified 2.135 million UAH in new revenue opportunities ($403,000 US), 11.294 million UAH ($2.131 million US) in cost reductions (allowing for 20 million additional cost of product for Cross-Zaria), and 1.08 million UAH ($204,000 US) in capital expenditure increases (CAP EX included because most of the money will be spent on US equipment). When combined with the actual savings of the 2001 tour, these results should continue to provide the impetus for Kharkiv agriculture to continue to lead all Ukraine.

The tour had only one individual, Oleksiy Grygoryev, the Chairman of the Board for Krug Production Cooperative, who claimed to have received little or no value in the tour. Krug Production Cooperative was selected as an alternative participant and was included on the tour because DOSA LTD Agrifirm dropped out. Krug participated in the tour selection process representing themselves as a pork producer. The onsite portion of the selection process was replaced by an interview process by the Kharkiv contractor. Krug would have been disqualified had the onsite process been followed since Krug is not an active pork producing farm. Oleksiy Grygoryev is Chairman of a feed production facility in Kharkiv. His intent was a cultural tour not a learning tour. His inclusion in the livestock tour prohibited other parties which were interested in participating and could have benefited from that activity from being included. Future contractor violations of the protocol should result in voiding their entire scoring system and a penalty assessed.

This tour covered more than 5,000 miles in a three week period. The days were long and resulted in excessive time on the bus. It is recommended that future tours limit the number of host visits so that the participants can get more in-depth information from a few key companies/farms. Though all the locations received positive feedback and were necessary for the tour (comments from the participants), some duplication could and should be eliminated.

The projected savings reflect a great deal of opportunity for further improvements in Ukraine agriculture. The combined tours (2001 and 2003) have significantly altered the livestock methods of Kharkiv. With such large opportunities, the program should have been expanded to include key Oblasts throughout Ukraine. Seeing is believing was the most common reason given for making changes, and certainly limiting the program to Kharkiv severely limits the potential for Ukraine to prepare to better compete with the other former Soviet countries (Poland and Czech Republic especially).